

REMARKS

Applicants thank the Examiner for thorough consideration given the present application. Claims 1-7 are currently being prosecuted. The Examiner is respectfully requested to reconsider his rejection in view of the amendments and remarks set forth below.

Specification

The Examiner objected to the Abstract and in particular a misspelling on line 15. By way of the present amendment, this has now been corrected.

Rejection Under 35 U.S.C. 103

Claims 1 and 3 stand rejected under 35 U.S.C. 103 as being obvious over Bleckmann (EP0041653) in view of the admitted prior art. This rejection is respectfully traversed.

The Examiner states that Bleckmann teaches a process of making a heat exchanger including the steps of providing a plurality of grooves in a recess on a radiator, positioning heat-transfer tubes in the grooves, positioning a heat-transfer plate 5 in front of the recess and applying downward pressure on the plates whereas to press the plate into the recess and flatten the plate and make the tubes have increased contact areas with the radiator. The Examiner also points out that he construes the teachings of one groove to mean there may be a plurality of grooves. The Examiner admits that the reference does not teach the use of solid-state paste tin. The Examiner relies on the admitted prior art to show that this is known in the art.

Applicants disagree with the Examiner's understanding of the Bleckmann reference and submit that the present claims are neither anticipated by nor obvious over this reference. In addition to not showing a plurality of grooves and not showing paste tin, the Applicants submit that other parts of the claim are missing from the Bleckmann reference. The Examiner states that the grooves are provided in a recess on a radiator. While there is a single groove 2 in support sheet 1 as shown in Figure 1, there is no recess formed therein. Instead, the plate 5 is pressed into the support sheet so that a plurality of connections 7 will be formed as bumps in holes 6.

Further, there is no indication that heat is applied to bring the downward pressure of the heat transfer plate. The heat would not be necessary since paste tin is not included. Figure 2 and 3 of Bleckmann show that the top of the pipe 3 is flattened by plate 5. However, this flattening only occurs on the top of the plate and thus does not cause the pipe to have an increased contact area with the radiator. In fact, the contact area is exactly the same as the pipe before it is flattened. Also, as indicated above, it does not appear that heat is being applied and accordingly heat transfer tubes are not firmly bonded to the grooves and the heat transfer plate is not bonded to the recess.

In the Bleckmann device, the purpose of pressing the connecting element 5 down on the support sheet 1 is to make a part of the support sheet along with two sides of the groove gap 14 tightly mounted into the hole 6 so that the connecting opening 5 reaching the groove gap 14 and joined to the edge zone to the groove gap 14 maintains this condition of tension.

This differs from the present invention where the first radiator 13 is provided with grooves 131a into which heat receiving ends of the heat-transfer tubes 12 can be placed. In the present invention, the pressing causes the round tubes to be in better contact with the square grooves. As is shown in Figures 4 and 5 of Bleckmann, contact is formed by forming the support sheet from both sides toward the pipe so that a greater area of the pipe is in contact with the groove. Thus, this is completely different from the process of the present invention.

Claims 2 and 3 depend from claim 1 and as such are also considered to be allowable. In regard to claim 3, the Examiner takes official notice that it is known in the art to use copper for applying pressure and supplying heat. However, Applicants submit that it is not known in the art to use such a flat pressure plate in the method of the present invention.

Claim 2 stands rejected under 35 U.S.C. 103(a) as being obvious over Bleckmann in view of the admitted prior art in further in view of Prasher et al. (U.S. Patent 6661660). This rejection is respectfully traversed.

The Examiner relies on Prasher et al. to teach a method of making a heat dissipating device where a flat plate is driven to apply a downward pressure to a heat-transfer plate to thermally couple the heat pipe and the radiator member. The Examiner feels that it have been obvious to one of ordinary skill in the art to modify Bleckmann to provide an effective means of providing an assembled heat exchange. Applicants submit that the Prasher et al. reference does not aid the Bleckmann reference in teaching the present invention. As shown in Figures 7 and 8, there is no recess for a pressure plate. The groove 614 shown in Figure 8 is round and appears to match the cross sectional shape of the pipe 606 so that flattening is not necessary. Further, the reference also does not show a plurality of grooves or the use of paste tin. Applicants submit that claim 2 remains allowable even when considered in combination with the Prasher reference.

Claims 4 –7 have now been added to recite other features of the claimed invention. Claim 4 makes it clear that the heating of the pressure plate and the flattening of the tubes occurs at the same time. Applicants believe this is already implied in claim 1 since both are the result of the driving step. However, Applicants have emphasized this feature in claim 4.

Likewise, claim 5 has also been added which makes it clear that the plate is bonded to the recess at the same time that the tubes are bonded to the grooves. Again, this is already inferentially included in claim 1 in the last three lines. However, Applicants now specifically state this feature.

Claim 6 and 7 now make it clear that the pipes are round and that the grooves have a rectangular cross section. This feature is to make it clear that the flattening of the tubes is desirable so that the two will be in better contact. Applicants submit that the references do not show this concept either.

CONCLUSION

In view of the above remarks, it is believed that the claims clearly distinguish over the patents relied on by the Examiner, either alone or in combination. In view of this, further reconsideration of the rejections and allowance of all the claims are respectfully requested.

If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone Robert F. Gnuse at (703) 205-8067 in the Washington, D.C. area.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 02-1448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly extension of time fees.

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Respectfully submitted,

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